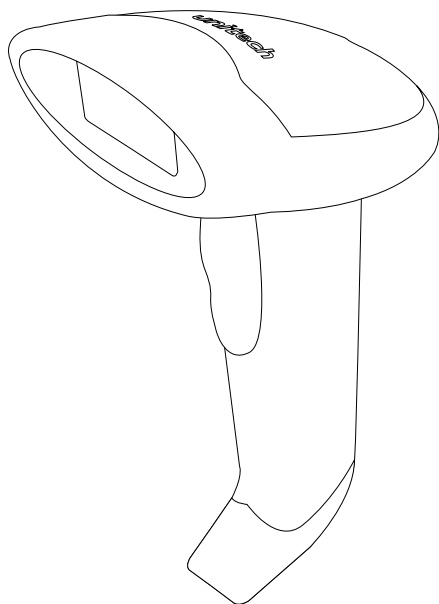


MS336 2D Imager Scanner



Product Reference Guide

Rev. C

About This Manual

This manual explains how to install, operate and maintain the Unitech MS336 Imager Scanner.

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Regulatory Compliance

CE, FCC, BSMI, VCCI

Table of Contents

Preface
About This Manual
Regulatory Compliance 2

Chapter 1
Introduction
Introducing the MS336 7
Support..... 8
Imager Engine Specifications 9
Decoder Specifications..... 10
Near Focus Decode Zone 11

Chapter 2
Imager Configuration Manager
Starting Up 12
Shutting Down 13
Basic Operations
Configuration Profiles 13
Connection and Scanner Settings..... 14
Workspace Tabs 15

Chapter 3
Bar Code Setup Menu
User Preferences
Set Default Parameter..... 16
Parameter Scanning 16
Beeper Tone 17
Beeper Volume 18
Trigger Modes 19
Power Mode 20
Time Delay to Low Power Mode 21
Video Mode..... 22
Focus Mode..... 22
Image File Format Selector..... 23
Video View Finder..... 23

Chapter 4

Bar Code Symbolologies

Introduction	24
UPC-A	
Enable/Disable UPC-A	25
Transmit UPC-A Check Digit	25
UPC-A Preamble	26
UPC-E	
Enable/Disable UPC-E	27
Transmit UPC-E Check Digit	27
UPC-E Preamble	28
Code 39	
Enable/Disable Code 39	29
Code 39 Check Digit Verification	29
Transmit Code 39 Check Digit	30
Code 39 Full ASCII Conversion	31
UPC-E1	
Enable/Disable UPC-E1	31
Transmit UPC-E1 Check Digit	31
UPC-E1 Preamble	32
EAN-13/JAN-13	
Enable/Disable EAN-13/JAN-13	33
Bookland EAN	
Enable/Disable Bookland EAN	33
EAN-8/JAN-8	
Enable/Disable EAN-8/JAN-8	34
Code 128	
Enable/Disable Code 128	34
UCC/EAN-128	
Enable/Disable UCC/EAN-128	35
ISBT 128	
Enable/Disable ISBT 128	35
Convert UPC-E to UPC-A	
Enable/Disable Convert UPC-E to UPC-A	36
Convert UPC-E1 to UPC-A	
Enable/Disable Convert UPC-E1 to UPC-A	37
Convert Code 39 to Code 32	
Enable/Disable Convert Code 39 to Code 32	38
Convert I 2 of 5 to EAN-13	
Enable/Disable Convert I 2 of 5 to EAN-13	39

Trioptic Code 39
 Enable/Disable Trioptic Code 39 40

Discrete 2 of 5
 Enable/Disable Discrete 2 of 5 40

Codabar
 Enable/Disable Codabar 41

MSI
 Enable/Disable MSI 41

Postal Code Symbolologies
 US Postnet 42
 UK Postal 42
 Japan Postal 43
 RSS 14 43
 RSS Limited 44
 RSS Expanded 44
 Dutch Postal 45
 Australian Postal 45

Composite Symbolologies
 Composite CC-C 46
 Composite CC-A/B 46
 Composite TLC-39 47

2D Symbolologies
 PDF417 48
 MicroPDF417 48
 Data Matrix 49
 Maxicode 49
 QR Code 50

Chapter 5
Sample Bar Codes

2D Bar Codes
 Data Matrix 51
 Maxicode 51
 QR Code 52
 PDF417 52
 MicroPDF417 52

1D Bar Codes
 EAN-13 53
 EAN-8 53
 UPC-A 53
 UPC-E 53

Interleave 2 of 5. 54

Code 39. 54

Code 128. 54

EAN 128 54

Codabar. 55

MSI 55

RSS Limited 55

Chapter 6

Troubleshooting

If Your Bar Code Doesn't Scan. 56

If Your System Doesn't Recognize Your Scanner 56

Other Product Questions 56

Introduction

Introducing the MS336

The Unitech MS336 is a high performance 2D imaging scanner that captures images and decodes all common 1D and 2D barcodes, including MaxiCode, PDF417, Datamatrix and QR Code, in a single cost effective device.

Designed for industrial use, the MS336 is rugged enough to withstand multiple 5 foot drops to concrete, and is ideal for retail, postal, healthcare, distribution center and manufacturing applications.

Set up is quick and easy using the USB connection and either Windows-based software or by scanning a series of barcodes for configuration.

To begin, run the USB imager driver setup file, and install the Imager Configuration Manager (ICM). Plug in the MS336 to your computer's USB port and wait for your system to recognize and finish installing the device. You may be asked to reboot your computer once the setup has completed.

Support

Unitech's professional support team is available to quickly answer your questions or technical-related issues. Should an equipment problem occur, please contact the Unitech regional service representatives nearest you. Visit the websites, listed below, for complete contact information:

UTC (China) <http://www.ute.com.cn>

UTT (Taipei, Taiwan) <http://www.unitech.com.tw>

APAC (Taipei, Taiwan) <http://www.unitech-adc.com>

UTJ (Japan) <http://www.unitech-japan.co.jp>

UTA (USA, Canada) <http://www.ute.com>

UTA (Latin America) <http://www.latin.ute.com>

UTI (Europe) <http://www.unitech-europe.nl>

Imager Engine Specifications

Performance

Field of View:	Horizontal: 32.2° Vertical: 24.5°
Optical Grayscale Resolution:	640 (H) x 480 (V) px
Roll:	360°
Pitch Angle:	+/- 60° from normal
Skew Tolerance:	+/- 50° from normal
Focal Distance (from front):	Near: 5 inches Far: 9 inches
Aiming Element (VLD):	650nm +/- 5 nm
Illumination Element (LED):	635 nm +/- 20nm
Minimum Print Contrast:	Minimum 25% absolute Dark/light reflectance measured at 650 nm

User Environment

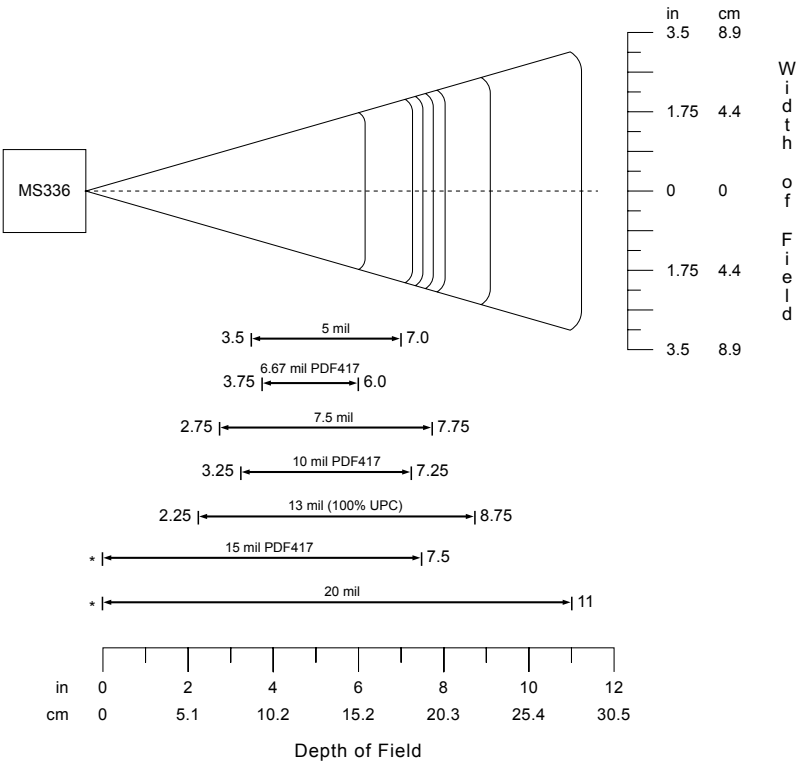
Ambient Light:	Total Darkness to 9,000ft candles (96,900 LUX)
Operating temperature:	-4° to 131° F (-20° to 55° C)
Storage Temperature:	-40° to 158° F (-40° to 70°C)
Humidity	
Operating:	95% RH, non condensing at 60°C
Storage:	85% RH, non condensing at 70°C
Shock:	2000 +/- 5% G
Power	
Input Voltage:	2.85 – 3.45 VDC
Camera Operating Current:	79 mA
Focus Motor Current:	30 mA
Aiming Current:	45mA
Peak Camera Current:	320 mA (Duration = 88uS)

Decoder Specifications

Interface:	USB1.1, Serial
1D Symbologies:	UPC/EAN, Code 128, UCC/EAN 128, RSS, Code 39, I 2 of 5, Discrete 2 of 5, Codabar, MSI
2D Symbologies:	Maxicode, PDF417, Data Matrix, QR Code
Postal Codes:	US Postnet, US Planet, UK Postal, Australian Postal, Japan Postal
Image File formats:	BMP, TIFF, JPEG
Power	
Input Voltage:	3.0VDC +/-10%
Operating Current:	170mA
Programmable Parameters:	Power Mode, Trigger Mode, Beeper Tone, Session Time, Focus Control, Camera Control, Image Control

Near Focus Decode Zone

Typical performance at 73°F (23°C) on high quality symbols in normal room light.
Vcc = 3.3V



* Minimum distance determined by symbol length and scan angle.

Imager Configuration Manager

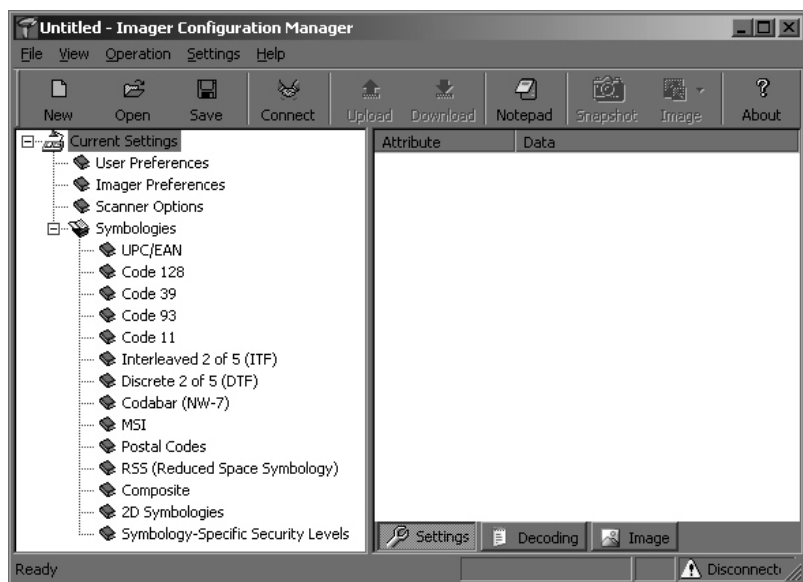
Starting Up

Start by connecting your imager to one of your computer's USB ports. You will need to install the Imager Configuration Manager (ICM) software in order for the MS336 to communicate with your PC, as well as to change the imager's settings.



After loading up the Imager Configuration Manager, the ICM icon will appear in your system tray.

ICM has a large workspace on the right, scanner settings on the left, function icons on the top, and workspace tabs beneath the work page.



Shutting Down

Even when clicking the close program icon, ICM will remain running in the background until closed through the system tray icon. To do this, right click on the icon and select "Exit".

Basic Operations

Along the top of the ICM are buttons that allow easy access to basic functions. Please refer to the help file for in depth descriptions of ICM's features.

Configuration Profiles

With the ICM, you can create and save configuration profiles. These profiles contain all of your settings, so that you can switch between different groups of settings for different situations.

**New**

Selecting this icon will start a new configuration profile for your imager

**Open**

Opens a previously saved configuration profile

**Save**

Saves your current settings into a configuration profile

Connection and Scanner Settings



Connect

Connects ICM to your scanner



Upload

Uploads settings from your scanner to ICM



Download

Downloads the settings from ICM into your scanner



Notepad

Opens notepad to receive your scanned output



Snapshot

Pressing this button allows you to take a snapshot picture with your imager



Image

Once a snapshot is taken, this icon becomes available to view resizing and saving options



About

Displays the current version of the Imager Configuration Manager, as well as the serial number of your imager, Driver DLL version, and Scanner Version

Workspace Tabs

Below the workspace area there are three different tabs that allow you to select different workspace areas. The help file includes more information about each workspace.



Settings

The settings workspace is shown by default. It shows each individual configuration of the section selected from the scanner settings.



Decoding

The decoding page contains information about your most recent bar code scan. This information includes the bar code type and data.



Image

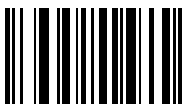
The image page displays an image scanned by your imager. After selecting the snapshot button, your image will be displayed here.

Bar Code Setup Menu

User Preferences

Set Default Parameter

Scan this bar code to return all parameters to the default values.



Set All Defaults

Parameter Scanning

To disable decoding of parameter bar codes, scan the **Disable Parameter Scanning** bar code below. Note that the **Set Defaults** parameter bar code can still be decoded. To enable decoding of parameter bar codes, either scan **Enable Parameter Scanning** or **Set All Defaults**.



Enable Parameter Scanning



Disable Parameter Scanning

Beeper Tone

To select a decode beep frequency (tone), scan the **Low Frequency**, **Medium Frequency**, or **High Frequency** bar code.



Low Frequency



Medium Frequency



High Frequency

Beeper Volume

To select a beeper volume, scan the **Low Volume**, **Medium Volume**, or **High Volume** bar code.



Low Volume



Medium Volume



High Volume

Trigger Modes

- **Level** - A trigger event activates decode processing, which continues until the trigger event ends, a valid decode, or the decode session time-out is reached.
- **Presentation Mode** - When the MS336 detects an object in its field of view it triggers and attempts to decode. The range of object detection does not vary under normal lighting conditions. This applies to decode mode only. In this mode the unit does not enter its sleep state.
- **Host** - A host command issues the triggering signal. The MS336 interprets a trigger pull as a level triggering option.



Level



Presentation Mode



Host

Power Mode

This parameter determines whether or not power remains on after a decode attempt. In low power mode, the decoder enters into a low power consumption mode to preserve battery life after each decode attempt. In continuous power mode, power remains on after each decode attempt.



Continuous On



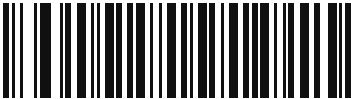
Low Power Mode

Time Delay to Low Power Mode

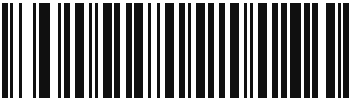
This parameter sets the time the decoder remains active after decoding. The decoder wakes upon trigger pull or when the host attempts to communicate with the decoder. This parameter only applies when *Power Mode* is set to **Low Power**.



1 Second



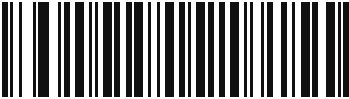
5 Seconds



1 Minute



5 Minutes



15 Minutes



1 Hour

Video Mode

In this mode the decoder behaves as a video camera as long as the trigger is active. When the trigger is released, the decoder returns to Decode Mode. Scan this bar code to temporarily enter Video Capture Mode.



Snapshot



Video Mode

Focus Mode

Select the Focus Mode to control the working range of the MS336. If **Far Focus** is selected, the MS336 is optimized to read at its far position. With **Near Focus**, the MS336 is optimized to read at its near position. **Smart Focus** toggles the focus position after every frame.



Far Focus



Near Focus



Smart Focus

Image File Format Selector

Select an image format appropriate for the system (BMP, TIFF, or JPEG). The decoder stores captured images in the selected format.



BMP File Format



JPEG File Format



TIFF File Format

Video View Finder

Select **Enable Video View Finder** to project the video view finder while in Image Mode, or **Disable Video View Finder** to turn the video view finder off.



Enable Video View Finder



Disable Video View Finder

Bar Code Symbolologies

Introduction

This section allows you to change settings for each symbology. After selecting a symbology from the scanner settings section, you can change the options for that symbology. To change any attribute's setting, double click it in the settings workspace. Below is a list of supported symbologies with configurable settings. For in depth options for each symbology, please refer to the help file.

1D Symbolologies	2D Symbolologies
UPC/EAN	PDF417
Code 128	MicroPDF417
Code 39	Code 128 Emulation
Code 93	Data Matrix
Code 11	Maxicode
Interleave 2 of 5 (ITF)	QR Code
Discrete 2 of 5 (DTF)	
Codabar	
MSI	
Postal Codes	
Reduced Space Symbology (RSS)	
Composite	

UPC-A

Enable/Disable UPC-A

To enable or disable UPC-A, scan the appropriate bar code below.



Enable UPC-A



Disable UPC-A

Transmit UPC-A Check Digit

The check digit is the last character of the symbol used to verify the integrity of the data. Scan the appropriate bar code below to transmit the bar code data with or without the UPC-A check digit. It is always verified to guarantee the integrity of the data.



Transmit UPC-A Check Digit



Do Not Transmit UPC-A Check Digit

UPC-A Preamble

Preamble characters are part of the UPC symbol, and include Country Code and System Character. There are three options for transmitting a UPC-A preamble to the host device: transmit System Character only, transmit System Character and Country Code ("0" for USA), and transmit no preamble. Select the appropriate option to match the host system.



System Character



System Character & Country Code



No Preamble

UPC-E

Enable/Disable UPC-E

To enable or disable UPC-E, scan the appropriate bar code below.



Enable UPC-E



Disable UPC-E

Transmit UPC-E Check Digit

The check digit is the last character of the symbol used to verify the integrity of the data. Scan the appropriate bar code below to transmit the bar code data with or without the UPC-E check digit. It is always verified to guarantee the integrity of the data.



Transmit UPC-E Check Digit



Do Not Transmit UPC-E Check Digit

UPC-E Preamble

Preamble characters are part of the UPC symbol, and include Country Code and System Character. There are three options for transmitting a UPC-E preamble to the host device: transmit System Character only, transmit System Character and Country Code ("0" for USA), and transmit no preamble. Select the appropriate option to match the host system.



System Character



System Character & Country Code



No Preamble

Code 39

Enable/Disable Code 39

To enable or disable Code 39, scan the appropriate bar code below.



Enable Code 39



Disable Code 39

Code 39 Check Digit Verification

When this feature is enabled, the decoder checks the integrity of all Code 39 symbols to verify that the data complies with specified check digit algorithm. Only Code 39 symbols which include a modulo 43 check digit are decoded. Enable this feature if the Code 39 symbols contain a Modulo 43 check digit.



Enable Code 39 Check Digit



Disable Code 39 Check Digit

Transmit Code 39 Check Digit

Scan a bar code below to transmit Code 39 data with or without the check digit.



Transmit Code 39 Check Digit (Enable)



Do Not Transmit Code 39 Check Digit (Disable)

Code 39 Full ASCII Conversion

Code 39 Full ASCII is a variant of Code 39 which pairs characters to encode the full ASCII character set. To enable or disable Code 39 Full ASCII, scan the appropriate bar code below.



Enable Code 39 Full ASCII



Disable Code 39 Full ASCII

UPC-E1

Enable/Disable UPC-E1

To enable or disable UPC-E1, scan the appropriate bar code below.



Enable UPC-E1



Disable UPC-E1

Transmit UPC-E1 Check Digit

The check digit is the last character of the symbol used to verify the integrity of the data. Scan the appropriate bar code below to transmit the bar code data with or without the UPC-E1 check digit. It is always verified to guarantee the integrity of the data.



Transmit UPC-E1 Check Digit



Do Not Transmit UPC-E1 Check Digit

UPC-E1 Preamble

Preamble characters are part of the UPC symbol, and include Country Code and System Character. There are three options for transmitting a UPC-E1 preamble to the host device: transmit System Character only, transmit System Character and Country Code ("0" for USA), and transmit no preamble. Select the appropriate option to match the host system.



System Character



System Character & Country Code



No Preamble

EAN-13/JAN-13

Enable/Disable EAN-13/JAN-13

To enable or disable EAN-13/JAN-13, scan the appropriate bar code below.



Enable EAN-13/JAN-13



Disable EAN-13/JAN-13

Bookland EAN

Enable/Disable Bookland EAN

To enable or disable Bookland EAN, scan the appropriate bar code below.



Enable Bookland EAN



Disable Bookland EAN

EAN-8/JAN-8

Enable/Disable EAN-8/JAN-8

To enable or disable EAN-8/JAN-8, scan the appropriate bar code below.



Enable EAN-8/JAN-8



Disable EAN-8/JAN-8

Code 128

Enable/Disable Code 128

To enable or disable Code 128, scan the appropriate bar code below.



Enable Code 128



Disable Code 128

UCC/EAN-128

Enable/Disable UCC/EAN-128

To enable or disable UCC/EAN-128, scan the appropriate bar code below.



Enable UCC/EAN-128



Disable UCC/EAN-128

ISBT 128

Enable/Disable ISBT 128

ISBT 128 is a variant of Code 128 used in the blood bank industry. Scan a bar code below to enable or disable ISBT 128. If necessary, the host must perform concatenation of the ISBT data.



Enable ISBT 128



Disable ISBT 128

Convert UPC-E to UPC-A

Convert UPC-E to UPC-A (Enable/Disable)

Enable this to convert UPC-E (zero suppressed) decoded data to UPC-A format before transmission. After conversion, the data follows UPC-A format and is affected by UPC-A programming selections (e.g., Preamble, Check Digit).

When disabled, UPC-E decoded data is transmitted as UPC-E data, without conversion.



Convert UPC-E to UPC-A (Enable)



Convert UPC-E to UPC-A (Disable)

Convert UPC-E1 to UPC-A

Convert UPC-E1 to UPC-A (Enable/Disable)

Enable this to convert UPC-E1 decoded data to UPC-A format before transmission. After conversion, the data follows UPC-A format and is affected by UPC-A programming selections (e.g., Preamble, Check Digit).

When disabled, UPC-E1 decoded data is transmitted as UPC-E1 data, without conversion.



Convert UPC-E1 to UPC-A (Enable)



Convert UPC-E1 to UPC-A (Disable)

Convert Code 39 to Code 32

Convert Code 39 to Code 32 (Enable/Disable)

Code 32 is a variant of Code 39 used by the Italian pharmaceutical industry. Scan the appropriate bar code below to enable or disable converting Code 39 to Code 32.



Convert Code 39 to Code 32 (Enable)



Convert Code 39 to Code 32 (Disable)

Convert I 2 of 5 to EAN-13

Convert I 2 of 5 to EAN-13 (Enable/Disable)

Enable this parameter to convert 14-character I 2 of 5 codes to EAN-13, and transmit to the host as EAN-13. To accomplish this, the I 2 of 5 code must be enabled, and the code must have a leading zero and a valid EAN-13 check digit.



Convert I 2 of 5 to EAN-13 (Enable)



Convert I 2 of 5 to EAN-13 (Disable)

Trioptic Code 39

Enable/Disable Trioptic Code 39

Trioptic Code 39 is a variant of Code 39 used in the marking of computer tape cartridges. Trioptic Code 39 symbols always contain six characters. To enable or disable Trioptic Code 39, scan the appropriate bar code below.



Enable Trioptic Code 39



Disable Trioptic Code 39

Discrete 2 of 5

Enable/Disable Discrete 2 of 5

To enable or disable Discrete 2 of 5, scan the appropriate bar code below.



Enable Discrete 2 of 5



Disable Discrete 2 of 5

Codabar

Enable/Disable Codabar

To enable or disable Codabar, scan the appropriate bar code below.



Enable Codabar



Disable Codabar

MSI

Enable/Disable MSI

To enable or disable MSI, scan the appropriate bar code below.



Enable MSI



Disable MSI

Postal Code Symbolologies

US Postnet

To enable or disable US Postnet, scan the appropriate bar code below.



Enable US Postnet



Disable US Postnet

UK Postal

To enable or disable UK Postal, scan the appropriate bar code below.



Enable UK Postal



Disable UK Postal

Japan Postal

To enable or disable Japan Postal, scan the appropriate bar code below.



Enable Japan Postal



Disable Japan Postal

RSS 14 (Reduced Space Symbology)

The variants of RSS are RSS 14, RSS Expanded, and RSS Limited. The limited and expanded versions have stacked variants. Scan the appropriate bar code below to enable or disable RSS 14.



Enable RSS 14



Disable RSS 14

RSS Limited

To enable or disable RSS Limited, scan the appropriate bar code below.



Enable RSS Limited



Disable RSS Limited

RSS Expanded

To enable or disable RSS Expanded, scan the appropriate bar code below.



Enable RSS Expanded



Disable RSS Expanded

Dutch Postal

To enable or disable Dutch Postal, scan the appropriate bar code below.



Enable Dutch Postal



Disable Dutch Postal

Australian Postal

To enable or disable Australian Postal, scan the appropriate bar code below.



Enable Australian Postal



Disable Australian Postal

Composite Symbolologies

Composite CC-C

Scan a bar code below to enable or disable Composite bar codes of type CC-C.



Enable CC-C



Disable CC-C

Composite CC-A/B

Scan a bar code below to enable or disable Composite bar codes of type CC-A/B.



Enable CC-A/B



Disable CC-A/B

Composite TLC-39

Scan a bar code below to enable or disable Composite bar codes of type TLC-39.



Enable TLC-39



Disable TLC-39

2D Symbolologies

PDF417

To enable or disable PDF417, scan the appropriate bar code below.



Enable PDF417



Disable PDF417

MicroPDF417

To enable or disable MicroPDF417, scan the appropriate bar code below.



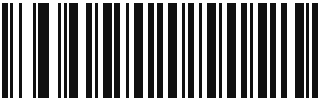
Enable MicroPDF417



Disable MicroPDF417

Data Matrix

To enable or disable Data Matrix, scan the appropriate bar code below.



Enable Data Matrix



Disable Data Matrix

Maxicode

To enable or disable Maxicode, scan the appropriate bar code below.



Enable Maxicode



Disable Maxicode

QR Code

To enable or disable QR Code, scan the appropriate bar code below.



Enable QR Code



Disable QR Code

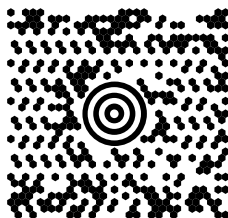
Sample Bar Codes

2D Bar Codes

Data Matrix



Maxicode



QR Code



PDF417



MicroPDF417



1D Bar Codes

EAN-13



EAN-8



UPC-A



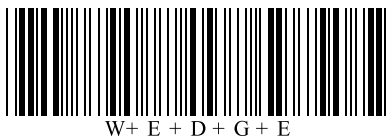
UPC-E



Interleave 2 of 5



Code 39



Code 128



EAN 128



Codabar



MSI



RSS Limited



Troubleshooting

If Your Bar Code Doesn't Scan

Try scanning other barcodes. If other barcodes scan, you may need to enable the symbology of your barcode. You may also need cleaner barcodes, as barcodes that are dirty or printed badly may not scan well. When a barcode doesn't scan, start by placing the scanner as close as possible to your barcode, pull the trigger, and gradually move your scanner back away from the barcode.

If Your System Does Not Recognize Your Scanner

Try unplugging the scanner and plugging it back in, or rebooting the system. You should also try plugging your scanner into a different port, as this issue may also be related to a faulty USB port.

Other Product Questions

For any other technical issues, please contact your regional Unitech office for support. Contact information can be found on their websites as listed on Page 8 of this Product Reference Guide.